

U.S. Patent Application Serial No. **10/531,075**  
Response filed February 1, 2010  
Reply to OA dated September 30, 2009

### **REMARKS**

Claim 5 has been amended in order to more particularly point out and distinctly claim the subject matter which the applicant regards as his invention. The applicant respectfully submits that no new matter has been introduced by the amendment.

Claims 1 and 5 stand rejected under 35 U.S.C. 103(a) as obvious over Fisher in view of Valimont (USPN 4,704,174) or Parker (USPN 5,593,786) or Bartrug (USPN 6,791,065) or Veerasamy (USPN 6,827,977).

In particular, the Examiner alleges that, although “Fisher does not specifically teach polyvinylchloride (PVC) as instantly claimed,...as evidenced by Valimont et al (Col. 5, lines 5-19), or Parker et al (Col. 1) or Bartrug et al (Col. 6, lines 55-61) or Veerasamy (Col. 5, lines 45-50), PVC is an obvious interlayer resin utilized in the art, and functionally equivalent resin to PVB” (Action, page 3, lines 10-14). Thus, the Examiner appears to believe that, in view of the newly cited references which disclose PVC to be a suitable material for forming an interlayer along with PVB, it would have been obvious for those skilled in the art to substitute Fisher’s PVB resin with a PVC resin to form a laminate structure in which the interlayer includes LaB<sub>6</sub> to obtain the claimed invention.

The applicant respectfully notes that claim 1 recites a heat shield layer “in the form of a

single film or board,” as opposed to a “laminate” in which the heat shield layer forms an interlayer. For example, page 16, lines 21, to page 17, line 20, of the specification discloses “a film- or board (plate)-like form” to be one embodiment of the disclosed invention alternative to another embodiment in which a laminate is formed with the heat shield layer as an interlayer. Thus, the claim language “said heat shield layer being in the form of a single film or board” of claim 1 excludes embodiments in which the heat shield layer is used as an interlayer. A heat shield layer in the form of a single film or board is simpler to produce than a laminate structure with a heat shield interlayer. This results in a simplification of the manufacturing process and a potential reduction in manufacturing costs.

While PVB is often used for forming an interlayer material, it is not a common choice for forming a single film or a stand-alone board. The primary known use of PVB is as an interlayer between two separately formed sheets, for example, as a windshield glass laminate of an automobile. On the other hand, the claimed heat shield layer resin composition is a material with the structural strength to form “a single film or board” as recited in claim 1. Thus, the claimed heat shield layer is completely different in its physical characteristics from Fisher’s PVB interlayer.

In addition, Fisher, Valimont, Parker, Bartrug and Veerasamy each disclose using their PVB compositions as an interlayer of a laminate, and none of these references discloses or suggests forming a single film or board with a PVB layer comprising LaB<sub>6</sub>. While Valimont, Parker, Bartrug

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and Veerasamy also disclose that some plasticized PVC compositions may be suitable as an interlayer material, it is entirely unknown whether these plasticized PVC resin compositions would be suitable for use as a substrate resin for forming a single film or board as now recited in claim 1. Thus, none of the references discloses or suggests a single film or board with LaB<sub>6</sub> kneaded into the substrate resin as recited in claim 1, and the invention of claim 1 would not have been obvious to those skilled in the art in view of the cited references.

With respect to claim 5, the applicant notes that none of the references discloses or suggests a kneaded PVC resin composition comprising LaB<sub>6</sub> that is suitable for forming an interlayer of a laminate as claimed. Thus, these references do not disclose or suggest how to obtain a resin composition that is suitable for forming the recited heat shield interlayer. In fact, in view of the cited references, it is not clear whether LaB<sub>6</sub> can be successfully combined with a PVC resin as to form a high-quality, even-surfaced laminate structure suitable for use as a heat shielding material for an agricultural or horticultural facility with the recited visible light transmittance and solar radiation transmittance. Thus, claim 5 would not have been obvious to those skilled in the art in view of the cited references, and the Examiner's argument that the recited references render the claim obvious is based on a forbidden hindsight. Since claim 1 recites kneading the heat shield filler into a substrate resin, a similar argument also applies to claim 1. Accordingly, this obviousness rejection should be withdrawn from claims 1 and 5.

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There are no other outstanding objections or rejections in this application. Accordingly, the pending claims are in condition for allowance, which action, at an early date, is respectfully solicited.

In the event that the Examiner determines that the prosecution of this application may be expedited by a telephone conference, the Examiner is requested to contact the applicant's undersigned attorney at the telephone number indicated below to arrange for an interview.

In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure:    Petition for Extension of Time